

Differential Pressure Sensor Air

Differential pressure transmitter with 8 selectable ranges and Modbus functionality. NEMA 4X / IP65 rated enclosure. For monitoring over-, under or the differential pressure of air and other non-flammable and non-aggressive gases. Typical application in HVAC systems for monitoring air filters, fans V-belts or fire and smoke control dampers. Options available with LCD display and Auto-Zero function.



Type Overview

Type	Measuring range pressure	Output signal	Output signal active pressure	Output signal active volumetric flow	Burst pressure	Display type	Additional features
22ADP-55Q	0...250 Pa / 1 inch WC	Modbus	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	40 kPa / 160 inch WC	-	-
22ADP-55QA	0...250 Pa / 1 inch WC	Modbus	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	40 kPa / 160 inch WC	-	Auto-Zero
22ADP-55QB	0...250 Pa / 1 inch WC	Modbus	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	40 kPa / 160 inch WC	LCD	Auto-Zero
22ADP-55QL	0...250 Pa / 1 inch WC	Modbus	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	40 kPa / 160 inch WC	LCD	-

Technical Data

Electrical Data	Power supply DC	15...24 V, $\pm 10\%$, 1.4 W
	Power supply AC	24 V, , $\pm 10\%$, 2 VA
	Electrical connection	Removable spring loaded terminal block max. 2.5 mm ²
	Cable entry	Cable gland with strain relief 2 x Ø6 mm (1/2" NPT conduit adapter included)
Functional Data	Sensor Technology	piezo measuring element
	Communicative control	Modbus RTU
	Multirange	8 measuring ranges selectable
	Output signal active note	Output DC 0...5/10 V selectable with switch voltage output: min. 10 kΩ load current output: max. 500 Ω load
	Display	LCD, 1.14x1.38" [29x35 mm] with backlight measured values: Pa, inchWC (configurable) measured values volumetric flow: m ³ /h, cfm (configurable)
	Application	air
	Response time	adjustable 0.8s or 4.0s

Measuring Data	Measuring values	differential pressure		
	Measuring fluid	air and non-aggressive gases		
	Measuring range settings pressure	Setting	range [Pa]	range [inch WC] Factory setting
		S0	0...250	0...1 ✓
		S1	0...100	0...0.4
		S2	0...50	0...0.2
		S3	0...25	0...0.1
		S4	-25...25	-0.1...0.1
		S5	-50...50	-0.2...0.2
		S6	-100...100	-0.4...0.4
		S7	-150...150	-0.6...0.6
	Accuracy pressure	±0.004 inch WC (±1 Pa) @ range <1 inch WC (250 Pa)		
Materials	Cable gland	PA6, black		
	Housing	cover: lexan, orange base: lexan, orange seal: 0467 NBR70, black UV resistant		
Safety Data	Ambient humidity	max. 95% r.H., non-condensing		
	Ambient temperature	15...120°F [-10...50°C]		
	Fluid temperature	15...120°F [-10...50°C]		
	Protection class IEC/EN	III safety extra-low voltage (selv)		
	Protection class UL	UL Class 2 Supply		
	EU Conformity	CE Marking		
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-6		
	Certification UL	cULus acc. to UL60730-1A/-2-6, CAN/CSA E60730-1:02		
	Degree of protection IEC/EN	IP65		
	Degree of protection NEMA/UL	NEMA 4X		
	Quality Standard	ISO 9001		

Safety Notes


This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application. Unauthorised modifications are prohibited. The product must not be used in relation with any equipment that in case of a failure may threaten humans, animals or assets.

Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Only authorised specialists may carry out installation. All applicable legal or institutional installation regulations must be complied during installation.

The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Remarks

Automated Zero-Point calibration (Auto-Zero)

Transmitters equipped with the auto-zero calibration are maintenance-free.

The auto-zero calibration electronically adjusts the transmitter zero every 10 minutes. The function eliminates all output signal drift due to thermal, electronic or mechanical effects. The auto-zero adjustment takes approx. 4 seconds after which the device returns to its normal measuring mode. During the 4 second adjustment period, the output and display values will freeze to the latest measured value.

Manual Zero-Point Calibration

In normal operation zero-point calibration should be executed every 12 months.

Attention! For executing zero-point calibration the power supply must be connected one hour before.

- Release both connection tubes from the pressure terminals + and -
- Press the button until the LED lights permanently
- Wait until the LED flashes again and reinstall the connection tubes to the pressure ports (note + and -)

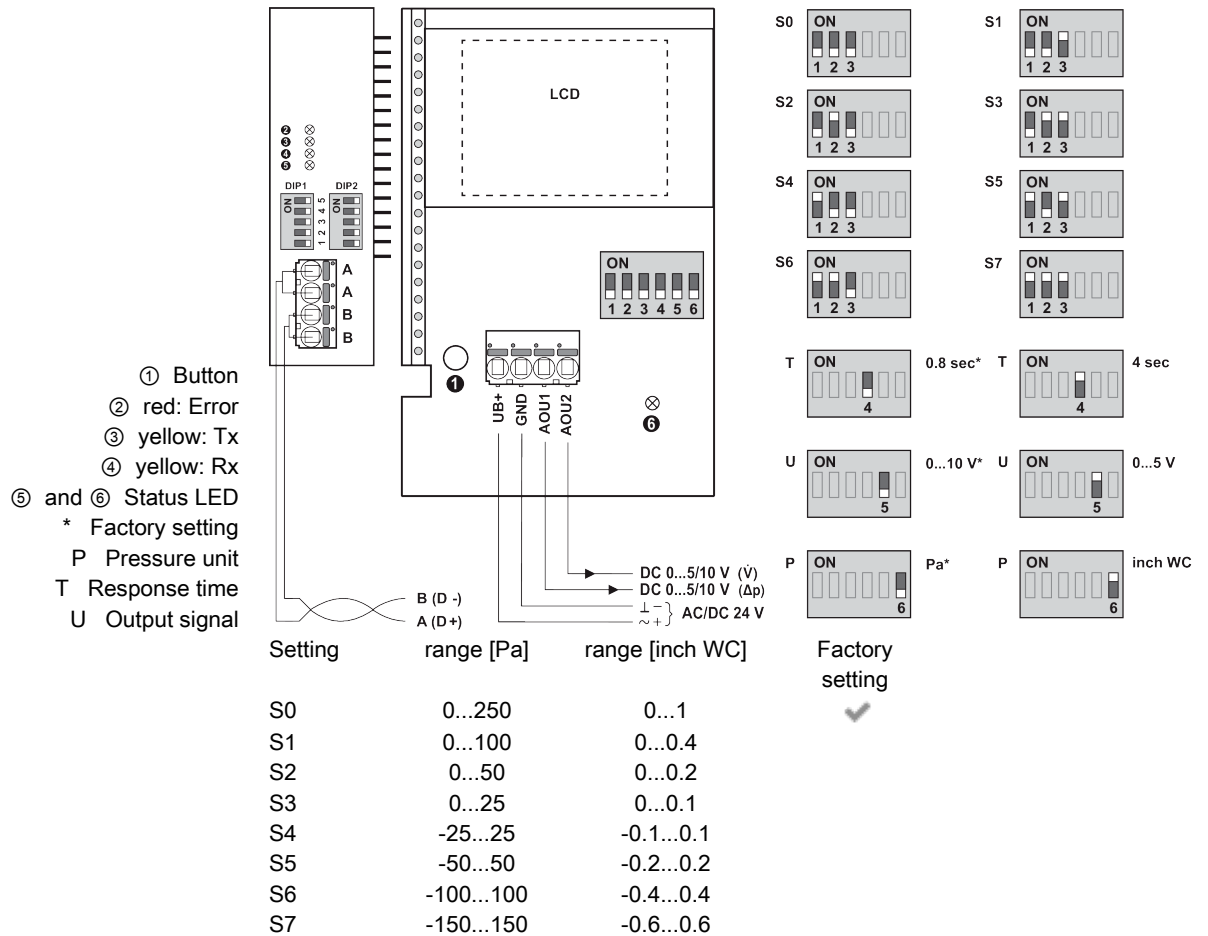
Scope of delivery

Scope of delivery	Description	Type
	Mounting plate L housing	A-22D-A10
	Duct connector kit, PVC tube 2 m, 2 connection elements (Plastic) for 22ADP-..	A-22AP-A08
	Cable Gland with strain relief Ø6...8 mm	
	Dowel	
	Screws	
	1/2" NPT conduit adapter, 2 x Ø6 mm	

Accessories

Optional accessories	Description	Type
	Duct connector, Metal, L 1.5", Tube connection 0.2"	A-22AP-A01
	Duct connector, Metal, L 4", Tube connection 0.2"	A-22AP-A03

Wiring Diagram



Detailed documentation

The separate document Sensor Modbus-Register informs about Modbus register, addressing, parity and bus termination (DIP1: address, DIP2: baud rate, parity, bus termination)

In addition to the information on the bus, the following analog outputs are available:

AOU1: differential pressure

AOU2: volumetric flow

The volumetric flow is calculated from the differential pressure, the k-factor and the height.

Factory setting for the k-factor is 1.00 and for the height 330 metres above sea level.

The values of the k-factor and the height can be changed via Modbus or BACnet.

Notes Wiring RS485



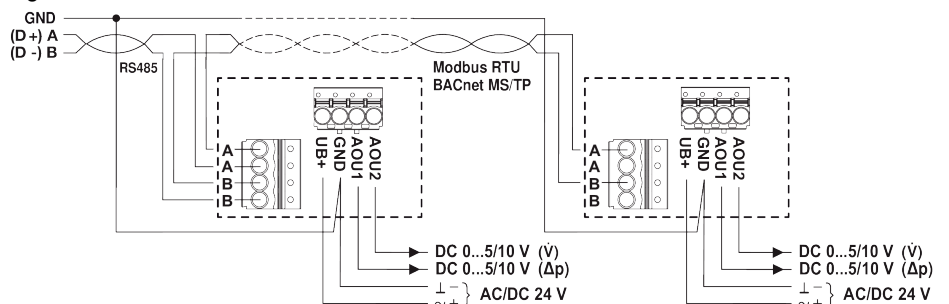
Connection via safety isolating transformer.

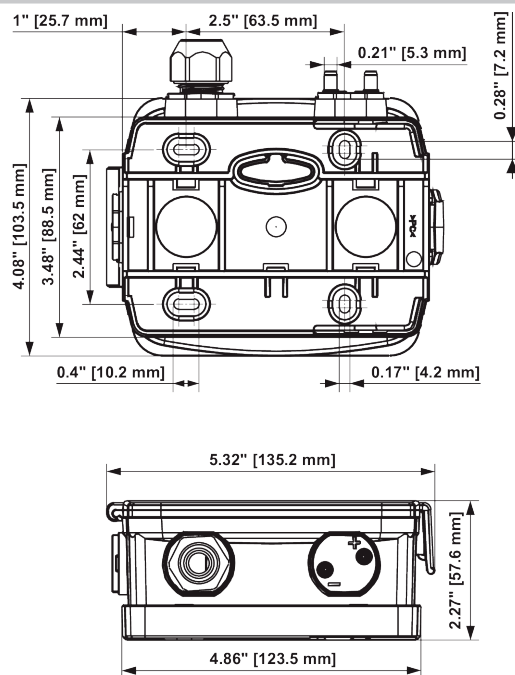
Parallel connection of other devices possible. Observe the performance data.

The wiring of the line for BACnet MS/TP / Modbus RTU is to be carried out in accordance with applicable RS485 regulations.

Modbus / BACnet: Supply and communication are not galvanically isolated. Connect earth signal of the devices with one another.

Wiring RS485 (Modbus RTU & BACnet MS/TP)



Dimensions
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Type	Weight
22ADP-55Q	0.64 lb [0.29 kg]
22ADP-55QA	0.66 lb [0.30 kg]
22ADP-55QB	0.73 lb [0.33 kg]
22ADP-55QL	0.68 lb [0.31 kg]